





intellectap

PRABHAV 2018:

SDG #6 - CLEAN WATER & SANITATION

INTRODUCTION TO THE ORGANISATIONS

IIC and Prabhav:

The *Impact Investors Council (IIC)* is an association of international and Indian Impact Investors.

Envisioned in 2013, IIC was incorporated on 19 December 2014, in order to address the growing sentiment among stakeholders in the Impact Investing community. The Impact Investors Council (IIC) is the leading national industry body to strengthen Impact Investing in India. It has an active support from leading Impact Investors and ecosystem players managing funds in excess of \$1bn. IIC's mission is to encourage private capital to bridge the social investment gap in India in sectors such as financial inclusion, clean energy, education, water & sanitation and healthcare.

Prabhav is IIC's annual flagship conference.

Aavishkaar – Intellectap Group:

The *Aavishkaar-Intellectap Group* is a global pioneer in taking an entrepreneurship-based approach towards development. Driven by a vision to Build Business with/for the other 3 Billion economically underserved, the Group focus is on developing the entrepreneurial ecosystem in the continents of Asia and Africa. Founded in 2002 with just US \$100, the Group now manages assets of over USD \$650 million, with 3,500+ employees present in India, Indonesia, Kenya and USA. The Aavishkaar-Intellectap Group financial ecosystem includes Equity funds, Venture debt vehicle, Microfinance and Advisory business including Investment banking services. The Group's positioning at the intersection of social and commercial business sectors allows us to attract and nurture intellectual capital that combines the business training and deep contextual knowledge of the region.

In the *Health & WASH Sector*, the group is instrumental in building institutional capacity and channelling investments through consulting services, investment banking services, and knowledge and information services. Examples include innovative and focused initiatives such as strategy design, market research, capital advisory services, developing innovative financing mechanisms, intermediating impact investment capital, innovation management, stakeholder engagement and policy analysis amongst other interventions.

Authors:

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Shruti Goel: Shruti is the Regional Manager at Intellectap and focuses on designing innovative financing mechanisms for Healthcare and WASH. With more than 10 years experience in emerging economies like India, Africa and Southeast Asia, she is passionate about linking investments made with achievement of SDGs.



Tanya Phillip: Tanya is an Associate with Intellecap Advisory Services where she works on health, water and sanitation projects. She has successfully executed a number of health financing projects in India and Africa. Her expertise lies in quantitative and qualitative research methods.

INTRODUCTION TO SDG 6:

CLEAN WATER & SANITATION

Understanding SGD6

Access to safe and clean water, proper sanitation facilities, and adequate hygiene can reduce illness and death from diseases, improve health outcomes, reduce incidence of poverty and thus, substantially contribute to social and economic development. The lack of safe water, sanitation and hygiene (WASH) remains one of the world's most urgent health issues. The targets and indicators developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs) have been illustrated below;

TARGETS		INDICATORS	
6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1	Proportion of population using safely managed drinking water services
6.2	By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1	Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water
6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1	Proportion of wastewater safely treated
		6.3.2	Proportion of bodies of water with good ambient water quality
6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1	Change in water-use efficiency over time
		6.4.2	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	6.5.1	Degree of integrated water resources management implementation (0-100)
		6.5.2	Proportion of transboundary basin area with an operational arrangement for water cooperation
6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.6.1	Change in the extent of water-related ecosystems over time
6.A	By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	6.A.1	Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan
6.B	Support and strengthen the participation of local communities in improving water and sanitation management	6.B.1	Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management



Interlinkages with other SDGs

The UN General Assembly and the Human Rights Council explicitly recognizes water and sanitation to be human right. It is derived from the right to adequate standard of living stipulated in Article 11 of the International Covenant on Economic, Social and Cultural Rights and other human rights treaties¹. SDG #6 is linked to many of the other SDGs in a way that achieving this target will also support the achievement of the other. Some more direct links are outlines below:

- **SDG 1 (No Poverty):** This goal calls for ensuring that all men and women have access to basic services including water and sanitation. Clean water and adequate sanitation facilities are critical to human survival.
- **SDG 2 (Zero Hunger):** Access to safe and affordable water is also a precondition to sufficient nutrition. Lack of adequate water resources worsens hunger and malnutrition.
- **SDG 3 (Good Health and Well Being):** Adequate water and sanitation services are a necessary precondition to the overall well-being of an individual. Combating water borne diseases and reducing the number of deaths and illnesses from hazardous chemical, and air, water and soil pollution will enhance good health among communities.
- **SDG 11(Sustainable Cities and Communities):** Poor sanitation and water infrastructure can adversely affect city dwellers and skew supply in a way that is unsustainable and inequitable. Effective management of water and sanitation resources are critical to sustainable cities.
- **SDG 12(Responsible Consumption and Production):** Development of environmentally sound management of water and sanitation resources in a way that does not conflict with other resources. For example, generation of electricity may require a large amount of water but rational use of both resources is imperative from a sustainability standpoint.

Importance of safe drinking water and effective sanitation

The World Health Organization (WHO) estimates that nearly half of the world's population will be living in water stressed areas by 2025.² An estimated 663 million people worldwide do not have access to an improved drinking water source and an estimated 1.9 billion people rely on drinking water that is faecally contaminated.³ 2.4 billion people or one-third of the world's population lack access to an improved sanitation facility and 13% practice open defecation.⁴

It is estimated that India loses more than \$106 billion USD per year of its GDP (> 5% of total) due to inadequate sanitation⁵. A study estimated that of the total economic loss caused by inadequate water and sanitation facilities in India; 71.7% is health related (premature mortality, productivity loss and increased healthcare costs), 7.8% is water related (cost of household treatment of drinking water, piped

¹ *The Human Right to Water and Sanitation*. Available [here](#).

² WHO, Feb 2018 [Fact Sheet](#)

³ Bain et. al. 2014

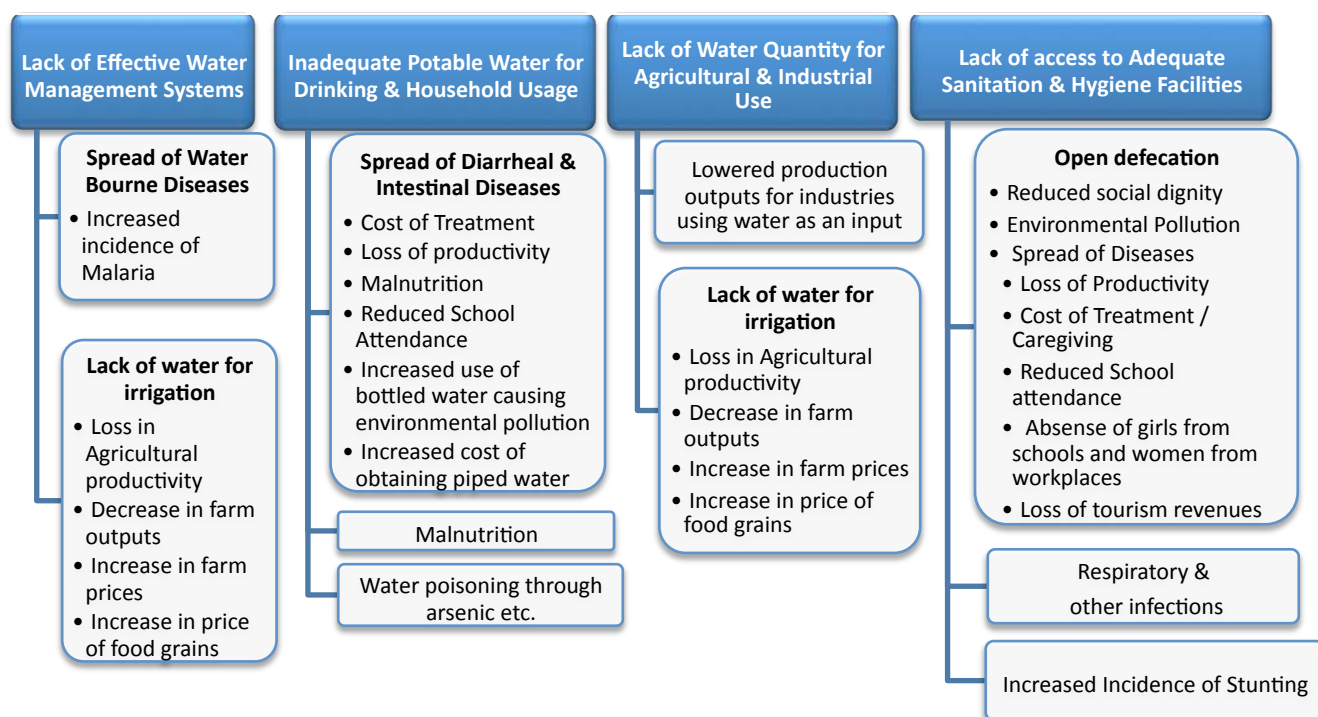
⁴ [WHO/UNICEF, 2015](#)

⁵ *The true cost of poor sanitation*, August 2016. Report Available [here](#).



water and cost of fetching water), 20% is time related (loss of productive time linked to gaining access of adequate WASH facilities) and 0.5% is lost earnings from tourism⁶.

Figure 1: The Economic and Health Impacts of Inadequate WASH Facilities



Addressing SDG 6 in India

India's National Health Policy 2017 outlines the Government's goal of enabling access to safe water and sanitation for all by 2020 under the Swachh Bharat Mission (SBM)⁷. The mission guidelines also specifically aim to accelerate sanitation coverage in rural areas and end open defecation by 2019⁸ and aims at achieving convergence among the wider determinants of health like better solid waste management and improved water quality.

The investments needed to achieve these goals are immense. The current financing gap for achievement of SDG #6 in India is estimated to be INR 8 lakh crores (USD\$123 billion)⁹. Globally, the current levels of funding flows to WASH services only cover capital costs of meeting *basic* WASH services. The cost of achieving *safely managed* WASH remains largely unmet¹⁰. This is also the case in India: As far as government budgetary allocations for sanitation is concerned, in 2017-18, there was a total of INR 13,948 crores available under the SBM¹¹ which is a 33% increase from the revised estimates of 2016-17.

⁶ *Economic Impacts of Inadequate Sanitation in India*, Report Available [here](#).

⁷ *National Health Policy of India*, Ministry of Health and Family Welfare, Government of India. Available [here](#).

⁸ *Guidelines for Swachh Bharat Mission*, Report Available [here](#).

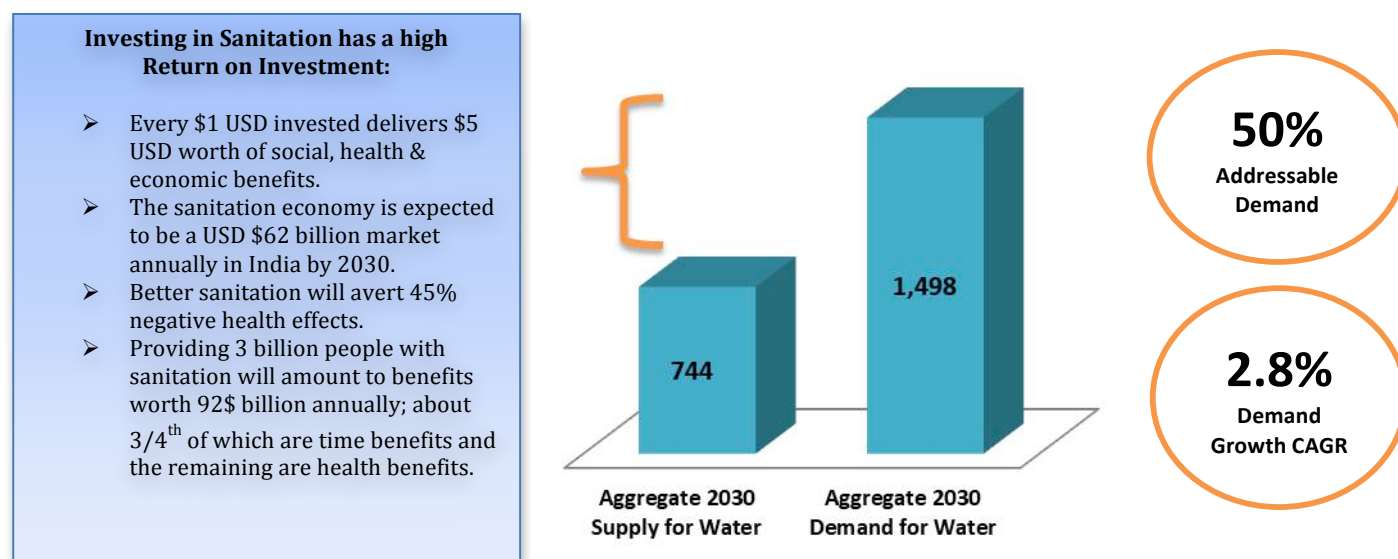
⁹ *Achievement of Sustainable Development Goals in India*, A study of financial requirements & gaps. Available [here](#).

¹⁰ *Sanitation and Water for All; How can the financing gap be filled? A Discussion Paper*. Available [here](#).

¹¹ PRS Legislative Research, 2018. Available [here](#).



Figure 2: Aggregate 2030 Demand Supply Gap in India (Billions of Cubic Meters)



There are, however, some concerns about the long term sustainability of the SBM approach since it is primarily focused on financing infrastructure. Most of SBM funding was spent only on the construction of individual household toilets which resulted in over 7 crore toilets constructed nationwide¹². However, there was an inadequate focus on other aspects of the sanitation value chain. For example, in 2017-18, only about 1.8% of the funds are used on IEC (Information, Education and Communication) activities¹³, and 0.5% of the total funds are spent on solid and liquid waste management under the SBM¹⁴.

In the last decade, Government priorities have seen a shift as shown in the figure below. As far as government allocations to water resources are concerned; the allocation to the Ministry of Drinking Water and Sanitation has decreased by 7% in the 2018-19 union budget compared to the revised expenditure made in 2017-18. Overall, the share of allocations towards drinking water has also reduced from 87% in 2009-10 to 31% in 2018-19¹⁵.

¹² Government of India press release. Available [here](#).

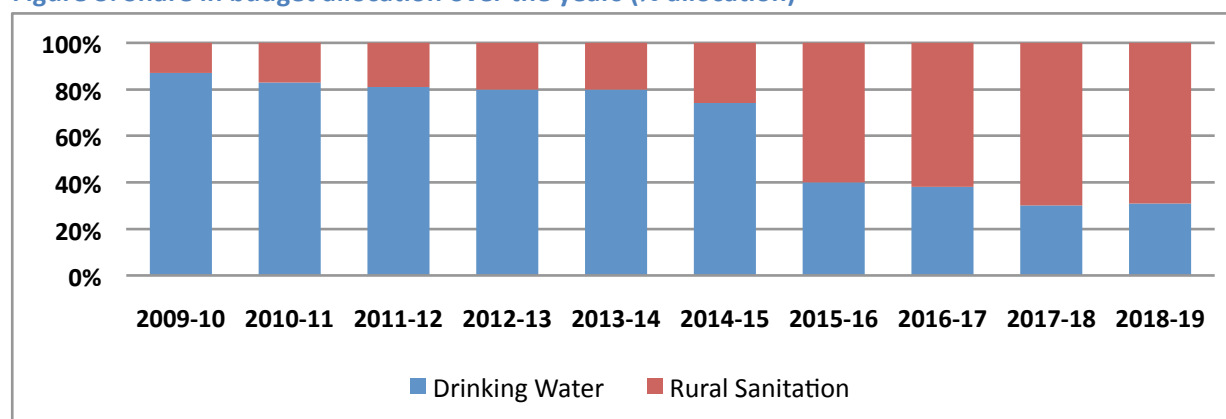
¹³ Swachh Bharat Mission Portal, Government of India. FY 2017-18

¹⁴ Swachh Bharat Mission Portal, Government of India. FY 2017-18

¹⁵ PRS Legislative Research, 2018. Available [here](#).



Figure 3: Share in budget allocation over the years (% allocation)



Source: Union Budget 2009-10 to 2018-19, PRS. Available [here](#).

The inadequacy of government resources available in the supply of WASH services highlights the need to engage various stakeholders in the business of providing safe water and sanitation solutions to meet the ever increasing national demand. Given the growing demand for these services, more innovative business models are rapidly being developed to help serve the underserved market in India. Such business models typically leverage emerging technologies in order to deliver deep insights to increase quality of services delivery within the sector. There is a need to identify and help scale up such solutions.

However, there are several barriers faced by WASH enterprises in scaling up and delivering effectively. One of the key challenges remains lack of patient capital for WASH entrepreneurs across the value chain. Currently most of the capital is either for large scale projects that get categorized under Infrastructure projects or it is towards specifics like building toilets. A robust investment channel is required to promote business models that fall in the middle and cater to gaps like facility maintenance, digitization, supply chain management etc.

This presents an opportunity for impact investors to step in to help bridge this gap. It is estimated that water and sanitation investments accounted for nearly 6% (or US\$6.8 billion) of the total AUM (Assets under Management) in India's Impact Investing landscape¹⁶. The impact potential for these WASH enterprises is tremendous. For instance, it is estimated that, for a capital investment is roughly US \$592 million, urban small water enterprises can provide 35 million or roughly half of the total slum dwellers in India, with sustainable access to safe drinking water.¹⁷

A peek into India's WASH ecosystem

There is growing momentum in the water and sanitation sector in India as the sector is witnessing more active policy-based and legislative pushes, as well as increased investment due to the infusion of viable and remunerative business models. Yet, the WASH ecosystem in India is relatively underdeveloped

¹⁶ *Impact Investing: Purpose-driven finance finds its place in India*, McKinsey & Co. September 2017. Available [here](#).

¹⁷ *Safe Water Network & USAID Report series*, 2016



owing to a lack of ecosystem support players and a lack of private sector capital in the sector. It comprises of social enterprise, private sector service providers, investors including private equity firms and impact investors, government bodies acting as regulators, as well as other ecosystem support players that include accelerators, incubators and technical advisors. Some of the ecosystem players providing financial, infrastructural, and advisory support within the sector are as follows:

- **Supply of Impact Investment Capital for WASH:** Banks like State Bank of India, HDFC Bank and Yes Bank that are engaged in bulk lending to business correspondents.¹⁸ Micro Finance Institutions (MFIs) like [Guardian](#) and [Grameen Koota](#) have disbursed loans for water and sanitation. Financing solutions like Water.org's WaterCredit program has helped increase the availability of small, affordable loans to meet the tremendous market demand for WASH that exists in India. Launched in 2015, this fund is expected to reach 1 million people in India over 7 years.
Some of the private sector firms investing in the water and sanitation sector in India include Aavishkaar (invested in [Nepra](#), [Waterlife](#) etc.), Acumen (invested in [Waterhealth International](#), [Guardian](#) which was the first water and sanitation only MFI in India and Spring Health), Avantage Ventures (invested in PIRAMAL Foundation that backed [Sarvajal](#)), Khosla Impact Fund (invested in [Driptech](#)), the Liechtenstein Global Trust (LGT), Matrix Partners (invested in [Waterlife](#) and [Chetas](#)) and The Sandi Group (invested in [Aquakraft](#)).
- **Demand for Impact Investment Capital for WASH:** These include enterprises working in the water and sanitation ecosystem at different stages of growth. Some examples include 3S, Basic Shit, Svadha, Ekam Eco Solutions, Samagra and Bankabio in the sanitation space and Hapserve, NextDrop, WaterWalla working in the areas of provision of water for all etc.
- **Indian Regulatory Policies for WASH:** In order to facilitate consistent lending to the sector, 2 important regulatory changes were made by the RBI:
 - Inclusion of WASH as a priority sector towards which credit should be diverted
 - Inclusion of toilet construction linked to the National Rural Livelihoods Mission whereby self-help groups can avail of loans for this purpose.

According to the RBI data, 1% of the priority sector limits of commercial banks towards WASH can release approximately USD \$3 billion (or INR 28,000 crores) credit annually¹⁹.
- **Other Ecosystem Support Players:** The Government of India sought active participation from the corporate sector and has set up the Swachh Bharat Kosh (SBK), a fund focused on sanitation and structured to attract CSR capital and contributions from individuals and philanthropists. So far stakeholders have contributed up to INR 9,000 crores has been spent in CSR by corporates in 3 years of this fund. The Global Sanitation Fund²⁰ also works in India and has supported sanitation programs in the final stage of closure. Some civil society players and foundations who work in this sector in India include [Biome](#), [Ecopro](#), [Arghyam Foundation](#), [CDD India](#) etc.

¹⁸ <https://water.org/>

¹⁹ Infrastructure and Investments in Water and Sanitation in India. Available [here](#).

²⁰ The Global Sanitation Fund. Website Link [here](#).



CHALLENGES AND EMERGING SOLUTIONS

A convening of key thought leaders in Sanitation conducted by Aavishkaar-Intellect group earlier this year²¹ revealed that, although 90% of the corporates in India have done a project in the WASH sector in India, most of the work was done in the area of infrastructure and very little in changing behaviour and shaping the demand for better facilities among rural and urban areas. Further, while momentum is growing of sanitation efforts in India (especially after the launch of the Government's *Swachh Bharat Abhiyan* in 2014), there is not yet evidence of scale. Solutions typically do not address the end to end process gap.

Even though the cost benefit analyses available on a global scale have frequently concluded that the benefits still outweigh the costs, the sector continues to be plagued with the following key economic challenges:

- A customer's willingness to pay for clean water solutions is relatively low.
- Considerable variability of demand across different regions in the country as well as inefficient resource use and maintenance.
- High cost of technology associated with monitoring and metering for WASH services.
- Funding which is largely through Government expenditure, is insufficient to meet the demand and not specifically targeted to beneficiaries who need it the most. Over 80% of participating countries in the 2016/17 cycle of the UN Water Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) reported insufficient financing to meet national WASH targets²².
- Lack of synergies and strategic partnerships between various stakeholders working in the sector such as policy makers, financiers, enterprises, and communities. Support from stakeholders in other sectors like agriculture and health are also integral to the success of WASH efforts due to the interconnected nature of the challenges facing each.

Challenges specific to provision of Safe and Adequate Water:	Challenges specific to provision of Sanitation Services:
<ul style="list-style-type: none">▪ Water and water treatment solutions tend to be highly capital intensive and thus create a significant barrier to entry for new enterprises▪ Price capping mechanisms which are prevalent in most of the municipalities in India can affect enterprise/private player profitability.▪ Most enterprises are unable to efficiently leverage economies of scale due to insufficient funds to finance large scale operations.	<ul style="list-style-type: none">▪ Limited market development and customer uptake▪ The existence of informal customer interface channels at the last mile makes it difficult for enterprises to access credit for the purpose of their operations.▪ A limited number of ecosystem enablers such as incubators that possess expertise and technical knowledge in the sanitation space are also barriers to scale in this sector.▪ Behavioural patterns of preference for open defecation over private toilet use are hard to

²¹ Attracting Investments and Talent in India's Sanitation Sector. Available [here](#).

²² Page 14, SDG 6, Synthesis Report on Water and Sanitation, 2018.



Emerging Solutions – Case studies of Innovative Solutions in WASH

Urban Sanitation for the Unserved _ Saraplast/ 3S:

Saraplast/ 3S was founded in 1999 with the aim of helping people live a cleaner, greener and dignified life through its comprehensive waste management solutions. This social enterprise is involved in manufacturing of recyclable environmental friendly polymer equipment, portable sanitation and waste management services. 3S provides toilets and toilet cleaning services to the underserved communities. These include labourers on construction site, large gatherings etc. on a rental basis.

These services are usually provided in big cities such as Mumbai, Pune, Hyderabad, Bengaluru, Chennai, Delhi/ NCR, Ahmedabad, and Hyderabad. Their focus is on urban sanitation especially among unserved settlements²³. The company invests a lot of capital and human resources in continuously refining its services, and developing new products, so that its sanitation solutions are not only relevant to the changing environment but is also a pioneer of this change.

3S has been recognized nationally and internationally with various awards for improving overall quality of hygiene management. As on date, the company manages 155 million litres of liquid waste and helps save over 104 million litres of fresh water annually with a no-human-touch approach in cleaning and servicing sanitation facilities.

In May 2009, Saraplast raised \$0.9 million from Aavishkaar India Micro Venture Capital Fund, a fund managed by Aavishkaar Venture Management Services, for 21% stake. In 2013, the company raised its second fund from responsAbility is an independent asset manager, specialising in development-related sectors of emerging economies such as finance, agriculture, health, education and energy²⁴.

'Let's Recycle' (Nepra Resource Management Pvt. Ltd.):

Ahmedabad-based Nepra Resource Management Pvt. Ltd is a waste management company founded in 2011. It has built a supply chain that connects dry-waste generators and collectors to recyclers, integrating about 1,800 waste-pickers into the formal economy and has a capacity of processing 100 tonnes of waste a day in Ahmedabad. Nepra has a four-storied, dry-waste processing unit, spread over 1.2 acres, where nearly 6 workers do a cursory sorting of the waste to remove glass and metal pieces. A conveyor belt then carries the waste into a whirring machine. Inside, an optical sensor scans through the rubbish to sift plastic and paper, based on how light reflects off these. The various kinds of plastic are then manually separated and sent to recyclers or turned into granules or lumps and sold to plastic makers. The recycled output becomes raw material for units making plastic containers and PVC pipes, among others.

Nepra claims to be the only waste management organization in India to have developed an Enterprise Resource Planning (ERP) system to track and monitor its activities so as to make the system more authentic and efficient. It plans to divert 30000 MT of waste from the landfill by 2020, up from 373MT in 2012, when it started the operations. A part of this will be accomplished by expanding the business footprint in other cities and the rest by increasing the portfolio and becoming a one stop shop for all waste management solutions. The company has impacted the lives of 5000+ people from bottom of pyramid.

In June 2018, Nepra has raised INR 44 crore (\$6.5 million) in its Series B round of funding²⁵. The funds were raised from existing impact investor Aavishkaar and new impact investor Asha Impact. The funding will help Nepra Resource expand to three more cities and help build the foundation for expansion across the country over the next five years. The company had raised its first external funding of \$2.5 million from Aavishkaar in January 2013²⁶.

²³ Website Link: <http://www.3sindia.com/about-us/why-choose-us/>

²⁴ <https://www.vccircle.com/portable-sanitation-services-firm-saraplast-gets-funding-responsability/>

²⁵ <https://www.vccircle.com/waste-management-firm-nepra-raises-series-b-funding-from-aavishkaar-asha-impact/>

²⁶ Website Link: <http://www.letsrecycle.in/>



RECOMMENDATIONS AND CONCLUSION

Action points for enterprises

With the push from the Government and renewed focus of multi-lateral and bi-lateral agencies, the sector is observing heightened interest among investors. Few more ecosystem enablers like innovative financing mechanisms, accelerator programs etc., shall ensure sustained interest from the investor community. However, the enterprises also need to focus on developing sustainable models in order to consume this capital. Few key elements which they should focus on include;

- Build sustainable structures on product and service offerings.
- Establish synergic partnerships with:
 - Last mile players like MFIs or NGOs to leverage opportunities to cross sell wherever feasible.
 - Developers and newly emerging capital providers like those involved in the affordable housing segment.
- Design solutions that are medium or long term in nature.
- Explore variations in business models like pay per use model models as opposed to more traditional ones like the capex return model.
- Build volume based business models driven by large usage volumes to facilitate scale.
- Explore models that incentivize positive behaviour change since these are likely to have more long term impacts.

Conclusion

The goal of achieving water and sanitation is aptly placed within the SDG framework, since the overarching goal of poverty eradication and sustainable development cannot be achieved without this. In India, there is an urgent need today to move beyond traditional methods to un-lock core business opportunities that lie within the water and sanitation systems, virtually untapped.

There is a need for stakeholders to work at the nexus of sectors and address these challenges faced in the water, sanitation and hygiene sector to work together in a holistic way to address these challenges.



Register at prabhav2018-iiic.com

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